PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P.AMCO107/WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/BE 03/00090	International filing date *(day/month/year)* 22.05.2003	Priority date *(day/month/year)* 22.07.2002
International Patent Classification (IPC) or both national classification and IPC C23F1/02		
Applicant AMCOR FLEXIBLES EUROPE A/S et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
22.12.2003	09.11.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Teppo, K-M Telephone No. +49 89 2399-8130

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/BE 03/00090

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-13 as originally filed

Claims, Numbers

1-8 received on 27.10.2004 with letter of 18.10.2004

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-8
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-8
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:
   D1: US-A-3 647 508 (GORRELL JOHN H) 7 March 1972 (1972-03-07)
   D2: US-A-5 759 422 (HABEGER CHARLES C ET AL) 2 June 1998 (1998-06-02)
   D3: US 2002/045351 A1 (JO GYOO CHUL) 18 April 2002 (2002-04-18)
   D4: US-A-4 959 120 (WILSON DAVID) 25 September 1990 (1990-09-25)

2. Document D1 (US-A-3 647 508), which is regarded as the closest prior art document, discloses a continuos process for the partial demetallization of a first multilayer substrate (col. 8, l. 60-69, claim 1), comprising designed lacquer comprising at least one metal dissolving etchant (col. 8, l. 60-69), locally reacts with said metal layer (col. 8, l. 60-69, claim 1) and that the dissolved metal remains within said multilayer structure (removing etching residue is optional; col. 9, l. 6-16) and that the dissolution of the metal allows the creation of a window in said metallic layer without the necessity of a washing step (col. 8, l. 60-71 and col. 9, l. 14 and claim 1) and in that said partial demetallization is carried out on standard gravure or flexo printing presses or coating equipment (col. 7, l. 59-72).

   From this the subject-matter of current claim 1 differs in that the etchant is designed in such a way that any chemical reactivity of said etchant is eliminated towards the adhesive layer.

2.1 The problem to be solved by the present invention may therefore be regarded as how to provide a simplified process for partial demetallization of flexible substrates.

2.2 Thus, the claimed process achieves optimal clarity and transparency of the demetallized area while eliminating the need for a washing step, which step was previously considered necessary for achieving transparency.

3. Document D1 is also considered to be closest prior art in respect of claim 8 and discloses a multilayer support obtainable by the process defined above under item 1 comprising windows in continuos supported metallic layers so that the windows may contain the total quantity of the residues resulting from the demetallization by means of an etching product (col. 8, l. 60-71 and claim 1 and col. 9, l. 10-16).

3.1 However, the subject-matter of claim 8 differs from D1 in that the obtained demetallized area is transparent and in that the substrate comprises an "oriented coextruded polypropylene film". D1 is completely silent on transparency. It would appear (assumed by the examiner) that in order to achieve transparency in D1, the reaction residues will be washed away. In any case, there appears to be more than one way in which D1 differs form the disclosure of claim 8. These differences offer the advantages already disclosed above.

4. Thus, the subject-matter of claims 1 and 8 is regarded as novel and inventive over D1, Art. 33(2) and 33(3) PCT.

New set of claims in view of the written opinion.

1. A continuous process for the partial demetallization of a first multilayer substrate comprising an oriented coextruded polypropylene film, an adhesive layer (26) and at least one metallic layer (21) characterised in that a designed etchant lacquer (25) comprising at least one metal dissolving etchant is applied on said metallic layer (21) in a quantity close to the stoechiometrical amount needed to completely dissolve said metallic layer (21) and to eliminate any chemical reactivity of the etchant towards said adhesive layer (26), and that the dissolved metal remains within said multilayer structure, the dissolution of the metal allowing the creation of a substantially transparent window in said metallic layer (21) in a washing-free step, said partial demetallization being suitable to be carried out on standard gravure or flexo printing presses or coating equipment.

2. Process as in claim 1 characterised in that said process further comprises a lamination step of the partly demetallized multilayer substrate with at least one second substrate.

3. Process as in claim 1 or 2 characterised in that at least one of said multilayer substrates are treated by at least one coating operation and/or at least one printing operation.

4. Process as in claim 3 characterised in that said coating or printing operation is carried out on a different substrate surface than that where the demetallization is carried out, yet involving a patterned print or coating in register with the demetallized area and/or the other printed designs in or on the multilayer structure.

5. Process as in claim 1, characterised in that the amount of said etchant lacquer (25) is fine-tuned by choosing a

suitable gravure cylinder depth and/or by adapting the etchant concentration in said etchant lacquer (25) .

6. Process as in claim 1, characterised in that the demetallization step achieves a light transmission of at least 90% within the demetallized area.

7. Process as in claim 1, characterised in that the etchant concentration in the etchant lacquer (25) corresponds to a slight excess of the stoechiometrical amount of said etchant to dissolve the amount of metal present on the multilayer substrate.

8. Multilayer support obtainable by the process of claim 1, comprising windows in continuous and/or discontinuous supported metallic layers characterised in that said windows contain the total quantity of the residues resulting from the demetallization by means of an etching product.